Wisconsin
Department of Commerce

Approval # 20040002
(Renewal for 20000012)

Environmental & Regulatory Services Division
Bureau of Storage Tank Regulation
201 West Washington Avenue
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin COMM 10 Material Approval

Equipment: USTMAN SIR 95.2, 95.2A, & 95.2B

Manufacturer: Gilbarco Veeder-Root
12265 West Bayaud Avenue, Suite 300
Lakewood, CO 80228

Expiration of Approval: December 31, 2009

SCOPE OF EVALUATION

The USTMAN Statistical Inventory Reconciliation (SIR) System, Versions 95.2 and 95.2A, & 95.2B, manufactured by USTMAN Technologies have been evaluated for use as a method of monthly monitoring for tanks and connected piping complying with **ss. COMM 10.61 (8) and 10.615 (3)** of the current edition of the Wisconsin Flammable and Combustible Liquids Code.

DESCRIPTION AND USE

The USTMAN SIR system functions as a quantitative method that analyzes inventory records for evidence of leaks. Based on an analysis of inventory records and application of a threshold, the method declares a tank to be tight, a leak indicated, the results inconclusive, or the data unusable. If a leak is indicated, an estimated leak rate will be given. The 95.2 version declares a leak using a consistent loss that exceeds 0.05 gallon per hour and is statistically different from zero at the 5 percent significance level. With the 95.2A version, the criterion for declaring a leak is a consistent loss that exceeds 0.1 gallon per hour and is statistically different from zero at the 5 percent significance level. The 95.2B version declares a leak using a consistent loss that exceeds 0.16 gallon per hour and is statistically different from zero at the 5 percent significance level.

The SIR system is capable of identifying and/or compensating for:

- Leak Rates (Identified and Quantified)
- Delivery Errors (Identify only)
- Unexplained Gains Or Losses (Identify only)
- Dispensing Meter Errors
- Calibration Errors
- Dipstick or Gauging Errors (Identify only)
- Conversion Chart Miscalibration
- Water Inflow Or Outflow (Identify only)
- Thermal Effects

Inventory data may be recorded manually or by use of an electronic or other tank monitor. A specified data form is not required, but forms or data format for electronic transmissions are provided by Gilbarco Veeder-Root.

Data that must be reported for leak detection analysis include:

- Measurement of product height and /or associated volume conversions for the days the tanks are in active operation.
- Deliveries or amount of product transferred to the tank by date and amount.
- A record of the amount of product dispensed from the tank system during each day of active use.

The facility may be closed for one or more consecutive days during the data collection period, but the inventory record submitted for analysis must contain data from a minimum of 30 days of active use of the facility. Properly calibrated meters are required for use of the SIR system.

The SIR system will not give conclusive results if there is an insufficient number of usable inventory records, irregular time intervals between readings, an unacceptable daily variability in inventory records, or significant chart and delivery errors.

If a leak is indicated, the leak could be located in any portion of the tank system, including piping. Additional testing may be needed to isolate the location of the leak.

TESTS AND RESULTS

The performance of the USTMAN SIR system was determined in accordance with the EPA protocol for evaluation of statistical inventory reconciliation methods and was also tested on larger tanks using a protocol from the National Work Group on Leak Detection Evaluations (NWGLDE). The SIR system was found to be capable of detecting a leak, using the manufacturer's threshold of 0.1 gallon per hour, with a probability of false alarm (P(FA)) of less than 0.1 percent. The probability of detection (P(D)) of a 0.20 gallon per hour leak was found to be greater than the minimum 95 percent required by regulation.

LIMITATIONS / CONDITIONS APPROVAL

Leak Threshold[1]:	Varies between 0.05 gph and 0.16 gph based on MDL.
Applicability:	Gasoline, diesel, other liquids upon Gilbarco Veeder-Root approval.
Tank Capacity:	Maximum 60,000-gallons for single tanks. Maximum 60,000-gallons aggregate for manifold systems
No. of Manifolded Tanks in System:	Maximum of 4
Data Requirement:	Minimum of 30 days of product level and flow through data

[1]: MDL (minimum detectable leak rate) is calculated for each unique set of data, based on a statistical analysis of the inventory records for the selected time period (MDL is a measure of how good the data set is). The threshold is an action level leak rate and is usually one-half of the MDL. If the estimated leak rate equals or exceeds the threshold established by the MDL, the system will not be declared tight, and the SIR vendor shall declare a fail.

- The USTMAN SIR system may be used as a method of monthly monitoring for tanks and connected piping complying with **ss. COMM 10.61 (8) and 10.615 (3).** An example of the USTMAN Monthly SIR Monitoring Report is attached for reference.

- All procedures for data collection specified by Gilbarco Veeder-Root shall be used.

- **Operators using statistical inventory reconciliation as the primary method of leak detection shall have in effect a process to submit their data to the vendor within 5 business days of the end of the monthly reporting period.**

- **The SIR vendor shall return the Statistical Inventory Reconciliation (SIR) Compliance Report to the submitter within 10 business days after submittal postmark.**

- Gilbarco Veeder-Root shall provide an updated list of all Wisconsin users of the SIR system to the department every six months. The list is to be sent to the address located on the cover sheet of this material approval. Copies of correspondence concerning UST system status between SIR system users and Gilbarco Veeder-Root shall be supplied to the department by both Gilbarco Veeder-Root, and the facility operators, upon request. Continued approval shall be contingent upon department verification of operational viability of the SIR method.

- If the SIR test results indicate that a tank system is not tight, or the results are inconclusive, the suspected release investigation and confirmation procedures specified under **ss. COMM 10.63 and 10.64** shall be followed. In addition, within 48 hours, the Bureau of Storage Tank Regulation shall also receive written notification of those tank systems that are not considered tight or where the results are inconclusive. The notification may be provided by either USTMAN Technologies directly or forwarded through the facility operator to the address on the cover sheet of this material approval.

- If a second test is required to confirm the status of a tank system, that test shall be an approved tightness test in accordance with **ss. COMM 10.635 (2)(a).** The SIR method shall not be used to provide this second test.

This approval will be valid through December 31, 2009, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Reviewed by: _____

Greg Bareta, P. E.
Engineering Consultant
Bureau of Petroleum Products and Tanks

Approved by: _____ Date: _____

USTMAN Monthly SIR Report Example

Monthly Statistical Inventory Reconciliation (SIR) Report
July, 2002

DEMO

Company:	DEMONSTRATION OIL CO	**Phone:**	800/253-8054
Address:	123 ANYWHERE STREET ANYTOWN, CA 80228		

Station:	DEMO STORE 1	**Phone:**	999-111-2222
Address:	132 SOME PL MEDFORD, WI 17489	**County:** **Facility No:**	PLANO 1234

SIR Provider:	USTMAN	**Phone:**	(303) 986-8011
SIR Version:	95.2B	**Report Date:**	09/05/2002

Tank	Tank and Line Status	Calculated Leak Rate gph	Product	Capacity Gallons	Sales Gallons	Deliveries Gallons
01	Pass	0.11	UNLEADED	10000	18872	18503
02	Pass	0.10	MIDGRADE	10000	4461	3100
03	Pass	-0.04	PREMIUM	10000	2504	2200

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